

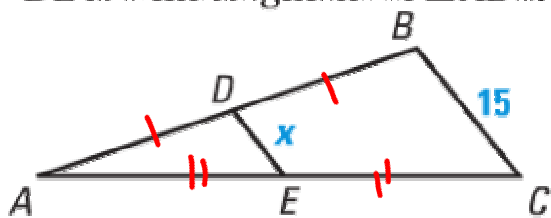
01/14/14 Agenda

- Review Homework
Worksheet 7 - Proving Triangles Similar
- Section 6.6 - Use Proportionality Theorems
- Homework
Worksheet 8 - Parallel Lines & Angle Bisectors

Warm Up - Homework out

Find the value of x :

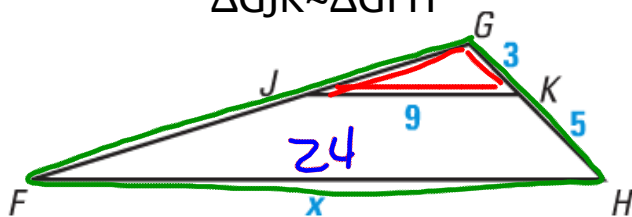
\overline{DE} is a midsegment of $\triangle ABC$.



$$2x = 15$$

$$x = 7.5$$

$\triangle GJK \sim \triangle GFH$



$$\frac{\text{SMALL}}{\text{BIG}} = \frac{3}{3+5} = \frac{3}{8}$$

$$\frac{3}{8} = \frac{9}{x}$$

$$3x = 8 \cdot 9$$

$$3x = 72$$

$$x = 24$$

Section 6.6 - Use Proportionality Theorems

Target 6F

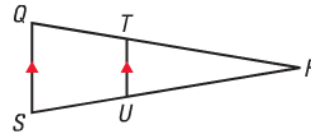
January 14, 2014

Goal:	Use proportions with triangles and parallel lines. -----
Today's	1. Use the Triangle Proportionality Theorems.
Takeaways:	2. Use the Proportionality Theorem with parallel lines.
SWBAT	3. Use the Proportionality Theorem with angle bisectors.

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*Goal 1. Use the Triangle Proportionality Theorems.***THEOREMS***For Your Notebook***THEOREM 6.4 Triangle Proportionality Theorem**

If a line parallel to one side of a triangle intersects the other two sides, then it divides the two sides proportionally.

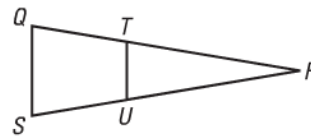


If $\overline{TU} \parallel \overline{QS}$, then $\frac{RT}{TQ} = \frac{RU}{US}$.

Proof: Ex. 22, p. 402

THEOREM 6.5 Converse of the Triangle Proportionality Theorem

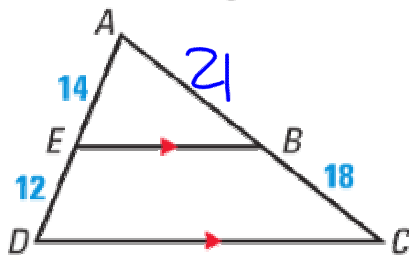
If a line divides two sides of a triangle proportionally, then it is parallel to the third side.



If $\frac{RT}{TQ} = \frac{RU}{US}$, then $\overline{TU} \parallel \overline{QS}$.

Proof: Ex. 26, p. 402

1. Find the length of \overline{AB} .



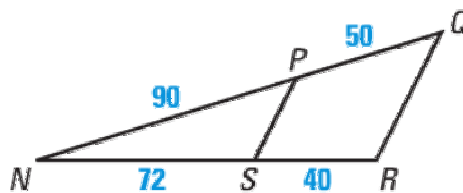
$$\frac{14}{12} = \frac{x}{18}$$

$$12x = 14 \cdot 18$$

$$12x = 252$$

$$x = 21$$

2. Determine whether $\overline{PS} \parallel \overline{QR}$.



$$\text{IF } \frac{90}{50} = \frac{72}{40}$$

THEN $\overline{PS} \parallel \overline{QR}$

$$\frac{90}{50} = \frac{9}{5}$$

$$\frac{72}{40} = \frac{9}{5}$$

$\overline{PS} \parallel \overline{QR}$

Section 6.6 - Use Proportionality Theorems

Target 6F

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Goal 2. Use the Proportionality Theorem with parallel lines.

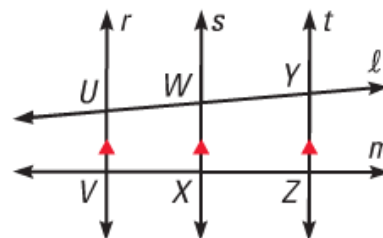
THEOREMS

For Your Notebook

THEOREM 6.6

If three parallel lines intersect two transversals, then they divide the transversals proportionally.

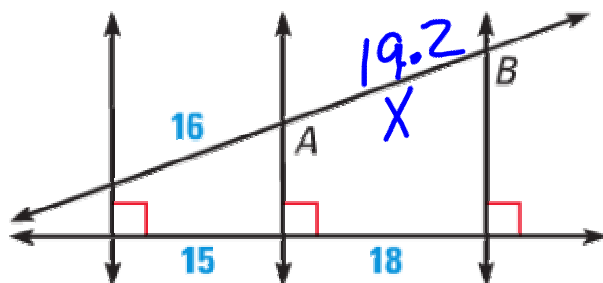
Proof: Ex. 23, p. 402



$$\frac{UW}{WY} = \frac{VX}{XZ}$$

Find the length of \overline{AB} .

3.



$$\frac{15}{18} = \frac{16}{X}$$

$$15x = 16 \cdot 18$$

$$15x = 288$$

$$x = 19.2$$

Section 6.6 - Use Proportionality Theorems

Target 6F

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Goal 3. Use the Proportionality Theorem with angle bisectors.

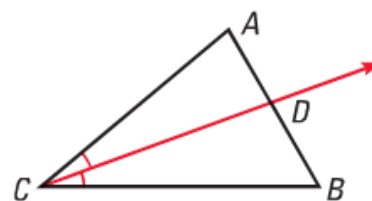
THEOREMS

For Your Notebook

THEOREM 6.7

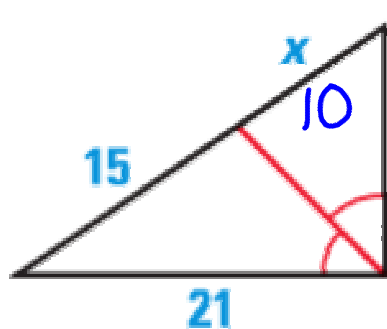
If a ray bisects an angle of a triangle, then it divides the opposite side into segments whose lengths are proportional to the lengths of the other two sides.

Proof: Ex. 27, p. 403



$$\frac{AD}{DB} = \frac{CA}{CB}$$

Find the value of the variable.

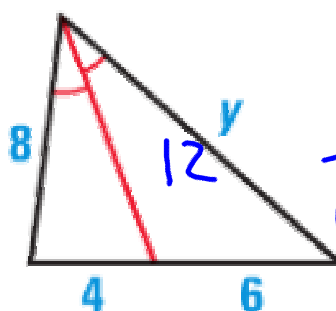


$$\frac{14}{21} = \frac{x}{15}$$

$$21x = 14 \cdot 15$$

$$21x = 210$$

$$x = 10$$



$$\frac{4}{6} = \frac{8}{y}$$

$$4y = 6 \cdot 8$$

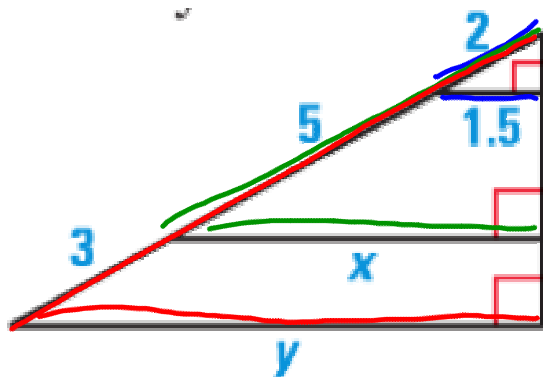
$$4y = 48$$

$$y = 12$$

Section 6.6 - Use Proportionality Theorems

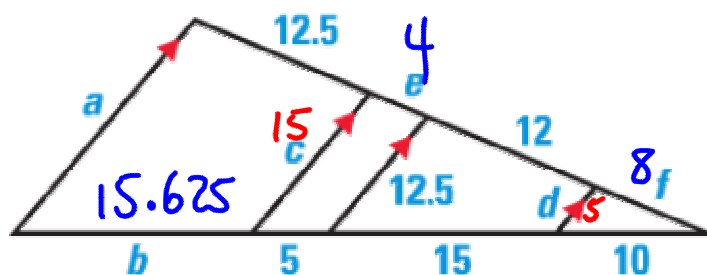
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$$\frac{2}{1.5} = \frac{7}{x} \quad x = 5.5$$

$$\frac{2}{1.5} = \frac{10}{y} \quad y = 7.5$$



$$\frac{10}{15} = \frac{F}{12}$$

$$15F = 10 \cdot 12$$

$$15F = 120$$

$$F = 8$$

